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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/799,660	03/15/2004	Ryan D. Bruneau	IMMR-0101A (434701-559)	8598

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EXAMINER	
DINH, DUC Q	

ART UNIT	PAPER NUMBER
2629	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/799,660	BRUNEAU ET AL.	
	Examiner	Art Unit	
	DUC Q. DINH	2629	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *10 February 2009*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *28-48 and 50-62* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *28-48 and 50-62* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Double Patenting

1. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

2. Claims 28-48 and 50-62 rejected on the ground of nonstatutory double patenting over claims 1-28 of U. S. Patent No. 6,707,443 since the claims, if allowed, would improperly extend the "right to exclude" already granted in the patent.

The subject matter claimed in the instant application is fully disclosed in the patent and is covered by the patent since the patent and the application are claiming common subject matter, as follows: apparatus having a housing, a sphere rotatable in at least one degree of freedom and an actuator couple to the housing configured to output haptic feedback orthogonally to a surface of the sphere of the apparatus.

Furthermore, there is no apparent reason why applicant was prevented from presenting claims corresponding to those of the instant application during prosecution of

the application which matured into a patent. See *In re Schneller*, 397 F.2d 350, 158 USPQ 210 (CCPA 1968). See also MPEP § 804.

Claim Rejections - 35 USC § 112

3. Claims 28-62 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. 28, 51 and 62 recites "*an actuator configured output haptic* ***feedback to the sphere (claims 28, 39, 51, 62)*** *the haptic feedback include a force applied by the actuator in a direction orthogonally to a surface of the sphere* (claims 28, 62) or *output feedback* ***to the sphere*** *the haptic feedback include a force applied by the actuator to the* ***surface of the sphere*** *perpendicular to a surface of the sphere (*claim 51*)*. There is no support for the cited limitation, throughout the disclosure of the application, the specification and the drawings only discloses the haptic feed back is applied ***to a surface orthogonal or perpendicular of the housing of the apparatus***. (see at least paragraph [11, 22, 33, 81] and Figs. 2 and 4.

Due to the 112 rejection, the examiner examines the application as best understood of claims language.

Drawings

4. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, "the *actuator*

configured output haptic ***feedback to the sphere"*** must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the

applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

6. Claims 28-33, 37-43, 46-49, 50-54 and 58-62 are rejected under 35 U.S.C. 102(b) as being anticipated by Keyson (U.S Patent No. 5,784, hereinafter Engel.

In reference to claim 28, Keyson discloses an apparatus, comprising:

a housing; (106,housing of the trackball shown in Fig. 1)

a sphere (108) positioned in the housing;

the sphere (108) being rotatable in at least one rotary degree of freedom without requiring movement of the housing, wherein the sphere rotates in response to a user's digit directly contacting and manipulating the sphere.

a sensor (110,114) coupled to the housing and configured to output sensor signals associated with a movement of the sphere in the at least one rotary degree of freedom; and

an actuator (116, 120) coupled to the housing and configured to output haptic feedback to the sphere (30), the haptic feedback being a force applied to the actuator orthogonally to a surface of the sphere (Figs. 3-5) the haptic feedback being based on the sensor signals (see col. 4, lines 4, lines 50-68).

In reference to claim 29, Keyson discloses an inertial mass coupled to the actuator, the actuator and the inertial mass collectively configured to output the haptic feedback, the haptic feedback being an inertial haptic feedback (col. 5, lines 48-63) .

In reference to claim 30, Keyson discloses wherein the haptic feedback is associated with a graphical representation displayed by a graphical user interface, a position of the sphere in the at least one rotary degree of freedom being associated with data values of a position of a cursor displayed in the graphical user interface the sphere in the at least one rotary degree of freedom being associated with data values of a position of a cursor displayed in the graphical user interface (col. 3, line 68 – col. 4, line 24).

In reference to claim 31, Keyson discloses the haptic feedback is associated with a simulated interaction of a cursor and a simulated graphical object in a graphical user interface (col. 3, line 68 – col. 4, line 24).

In reference to claim 32, Engle discloses wherein the haptic feedback is associated with data values associated with movement of a cursor between menu items (P1-P5) in a displayed graphical menu (col. 3, line 68 – col. 4, line 24).

In reference to claim 33, Engel discloses wherein the haptic feedback includes a force sensation, the force sensation being at least one of a pulse, a vibration, and a texture (col. 5, lines 48-63).

In reference to claim 37, Keyson discloses a microprocessor (102 of Fig. 2) coupled to the sensor and the actuator, the microprocessor being configured to send haptic feedback signals to the actuator based on host commands received from a host computer, the microprocessor further configured to send locative data to the host computer, the locative data being associated with the sensor signals and the movement of the sphere (col. 5, lines 48-63).

In reference to claim 38, Keyson discloses the actuator is configured to output the haptic feedback, the haptic feedback being associated with a command received from a host computer (col. 5, lines 48-63).

In reference to claim 39, Keyson disclose an apparatus, comprising:

a housing;

a sphere positioned in the housing, the sphere being rotatable in at least one rotary degree of freedom without requiring movement of the housing, wherein the sphere rotates in response to a user's digit directly contacting and manipulating the sphere;

a sensor coupled to the housing and configured to output sensor signals associated with a movement rotation of the sphere in the at least one rotary degree of freedom by the user' s direct contact: and an actuator coupled to the housing, the actuator being configured to output haptic feedback to the sphere, wherein the haptic feedback does not resist or assist movement of the sphere as the sphere is moved; and

at least one compliant element (303, 304, 504 of Figs. 3, 5) coupled to the housing and the actuator, the at least one compliant element being configured to amplify the haptic feedback. (col. 6, lines 47-60)

In reference to claim 40, Keyson discloses wherein the at least one compliant element includes a compliant coupling between the housing and a support for the housing (col. 6, lines 47-60).

In reference to claim 41, Keyson discloses wherein at least a portion of the sphere extends from the housing (trackball 30 has a portion of the sphere extends from the housing, the haptic feedback being output approximately along an axis substantially normal to a point of the sphere (see Fig. 2).

In reference to claim 42, wherein the haptic feedback is associated with a simulated interaction of a cursor with a simulated graphical object displayed in a graphical environment (see rejection of claim 31).

In reference to claim 43, Keyson discloses an inertial mass coupled to the actuator, the actuator and the inertial mass collectively configured to output the haptic feedback, the haptic feedback being an inertial haptic feedback. (see rejection of claim 29)

In reference to claim 46, Keyson discloses a microprocessor coupled to the sensor and the actuator, the microprocessor being configured to output haptic feedback signals to the actuator based on host commands received from a host computer microprocessor further being configured to send locative data to the host computer, the locative data being associated with the sensor signals and the movement of the sphere. (see rejection of claim 37).

In reference to claim 47, Keyson discloses the actuator being a first actuator, the apparatus further comprising a second actuator configured to output a second haptic feedback in the at least one rotary degree of freedom (see second actuator 116 of Fig. 1)

In reference to claim 48, Keyson discloses wherein said second actuator is a passive brake configured to provide a resistance to rotation of the sphere (see 506 of Fig. 5).

In reference to claim 50, Keyson discloses wherein the haptic feedback is output in response to a movement of an inertial mass coupled to an actuator (see rejection of claim 29).

In reference to claim 51, Keyson discloses an apparatus, comprising:

a sphere positioned within a housing and movable in at least one rotary degree of freedom;

a sensor configured to output sensor signals associated with a movement of the sphere in the rotary degree of freedom by directly contacting the sphere via a user' s digit, wherein rotation of the sphere occurs without movement of the housing; and

an actuator configured to output haptic feedback to the sphere, the haptic feedback including a force applied by the actuator in a direction perpendicular to the surface to the sphere, the haptic feedback being based on the sensor signals (see rejection of claim 28 and see Fig. 2).

In reference to claim 52, Keyson discloses an inertial mass coupled to the actuator, the actuator and the inertial mass collectively configured to output the haptic feedback, the haptic feedback being an inertial haptic feedback (see rejection of claim 29).

In reference to claim 53,Keyson discloses, wherein the haptic feedback is associated with a graphical representation displayed by a graphical user interface, a

position of the sphere in the at least one rotary degree of freedom being associated with data values of a position of a cursor displayed in the graphical user interface (see Fig. 5 and col. 6, lines 21-55).

In reference to claim 54, Keyson discloses wherein the haptic feedback is associated with a simulated interaction of a cursor and a simulated graphical object in a graphical user interface. (see rejection of claim 31)

In reference to claim 55, Keysohnl discloses wherein the haptic feedback is associated with data values associated with movement of a cursor between menu items in a displayed graphical menu.(see rejection of claim 32).

In reference to claim 60, refer to the rejection of claim 37.

In reference to claim 61, refer to the rejection of claim 38.

In reference to claim 62, Engel discloses a method, comprising:

selecting a housing having a sphere therein (trackball in Fig. 2), wherein the sphere is partially exposed from the housing;

rotating the sphere by directly contacting the sphere using a digit, wherein rotation of the sphere does not cause movement of the housing; (trackball device using the sphere to move the cursor without moving the housing)

generating a sensor signal via a sensor wherein the sensor signal causes a simulated interaction or event in a graphical environment on a display in response to said rotation; and

outputting a haptic feedback force onto the sphere in a direction orthogonal to the rotation of the sphere from an actuator in response to said simulated interaction or event in said graphical environment. (see rejection as applied to claims 51 and 54-55).

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

8. Claims 34-36, 44-45, 56-57 are rejected under 35 U.S.C. 103(a) as being unpatentable over Keyson as applied to claims 28-33 above, and further in view of Shalit (U.S Patent No. 7,024,625).

In reference to claims 34-35, Engel does not discloses wherein the haptic feedback is a vibrotactile haptic feedback that is provided by a moving element , and wherein the moving element is a cover portion of the housing, the cover portion being movably coupled to a remaining portion of the housing.

Shalit discloses a vibro-tactile feedback for a computer tracking device 10 (such as trackball; see col. 3, lines 1-3) as shown in Fig. 2-5 wherein the haptic feedback is a vibrotactile haptic feedback that is provided by a moving element (20), and wherein the moving element is a cover portion of the housing of the mouse 10, the cover portion being movably coupled to a remaining portion of the housing.

It would have been obvious for one of ordinary skill in the art at the time of the invention to provide the vibrotactile haptic feedback in the device of Engel as taught by

Shalit to provide additional feedback for the system in different applications (col. 2,lines 10-21 of Shalit).

In reference to claim 36, Shalit discloses wherein the moving element is a button, the button being configured to provide input to a host computer (the cover portion 20 of Shalit includes button as shown in Figs. 2-3).

In reference to claim 44, Shalit discloses a flexure member (58), the flexure member being configured to provide a centering spring force to the inertial mass (see Fig. 4 of Shalit).

In reference to claim 45, Shalit discloses wherein the haptic feedback is a vibrotactile force, the actuator being configured to drive a moving element. (see rejection of claim 34-35).

In reference to claims 56-57 and 58, refer to the rejection of claims 34-36.

Response to Arguments

9. Applicant's arguments with respect to claims 28-48 and 50-62 have been considered but are moot in view of the new ground(s) of rejection.

10. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the

shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Conclusion

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to DUC Q. DINH whose telephone number is (571)272-7686. The examiner can normally be reached on Mon-Fri from 8:00.AM-4:00.PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, AMR A. AWAD can be reached on (571)272-7764. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Duc Q Dinh/

Examiner, Art Unit 2629